REMARKS

Claims 1, 2, 5, 7, 16, 17, 19, 20, 21, 24, and 35 have been amended, and claims 36 and 37 have been added. Hence, claims 1 – 24 and 26 – 37 are pending in the application.

Claim 7 was objected to, apparently because of an antecedent basis error. The error has been corrected. Removal of the objection is respectfully requested.

Claims 1 – 24 and 26 - 35 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,809,297, issued to David M. Kroenke, et al., herein *Kroenke*. These rejections are traversed.

DESCRIPTION OF CITED ART

Because the cited art is based on *Kroenke*, a description of *Kroenke* is useful. The following are excerpts from *Kroenke*.

> Transformation of Semantic Objects into Relational Tables
>
> As described above, the present invention is a system that allows a user to create a semantic object data model that represents data to be stored in a database. The system then transforms the model into one or more of a set of commands that are interpreted by a conventional database program to create a plurality of relational database tables that correspond to the semantic object data model. (col. 27, line 63 to col. 28, line 4)
>
> The particular table definitions produced by the present invention can be tailored to a particular database protocol determined based upon the user's election of a specific commercial database program with which the present invention will be used. Given the following description of how the semantic object model is transformed into a number of relational tables, it is considered to be within the skill of a computer programmer to create a driver for any of the commercially available relational database programs that will produce the appropriate set of commands that cause that database to create corresponding relational database tables for the desired schema. (col. 28, line 32 – 43)

CLAIMS 1, 16, AND 20

Claims 1 and 20 recite:

generating based on database metadata an object id derived from one or more values from said one or more rows, wherein said one or more values reside in one or more columns, wherein said database metadata specifies that said object id is generated based on values in said one or more columns; and

presenting data from said one or more rows as an object that belongs to said object class and that has said object id.

Claim 16 recites:

said processor configured to generate based on database metadata an object id derived from one or more values from said one or more rows, wherein said one or more values reside in one or more columns, wherein said database metadata specifies that said object id is generated based on values in said one or more columns; and

said processor configured to present data from said one or more rows as an object that belongs to an object class and that has said object id.

The system cited in *Kroenke* and the system cited by claims 1, 16, and 20 differ in many fundamental ways. For example, in *Kroenke*, transformation between an object oriented model and a relational model occurs at the data structure level, by transforming object oriented data structures into a set of relational data structures. While *Kroenke* discusses transforming object oriented data structures into relational data structures, *Kroenke* in no way suggests any transformation or processing of the data that is actually stored in the relational data structures. The claims on other hand, explicitly require steps that read and use

data stored in data structures, i.e. reading data from the tables, and generating object ids from values in one or more columns of those tables, etc.

Furthermore, *Kroenke* teaches to convert from an object oriented model to a relational model that can be represented by relational data structures in a relational database system. Thus, the goal and end result of *Kroenke* is the creation of a set of relational data structures in a relational database system. Presumably, the data actually stored in the relational data structures is processed and presented in a conventional way as relational data. Thus, it is not a goal of the system in *Kroenke* to present data that is stored in data structures as object oriented data, let alone, to present such data as an object that belongs to an object class, much less that has an object id. The claims on the other hand, describe a system that explicitly requires presenting data stored in data structures of a database system as an object, and in particular, an object that belongs to an object class, and that has an object id.

For the reasons discussed above, claims 1, 16, and 20 are patentable. Reconsideration and allowance of claims 1, 16, and 20 is respectfully requested.

CLAIM 7, 19, AND 24

Claims 7 and 24 recite:

> reading a first set of data from one or more fields of a plurality rows from the set of one or more tables;
>
> generating a column object based on said first set of data; and
>
> presenting a second set of data from said set of one or more tables as object oriented data by presenting said second set of data as said object that has said column object as an attribute.

Claim 19, recites:

said processor configured to read a first set of data from a plurality of rows from the set of one or more tables;

said processor configured to generate a column object based on said first set of data; and

said processor configured to represent a second set of data from said set of one or more tables as object oriented data by presenting said second set of data as said object that has said column object as an attribute.

For reasons similar to those discussed with respect to claims 1, 16, and 20, claims 7, 19, and 24 are patentable. Reconsideration and allowance of claims 7, 19, and 24 is respectfully requested.

DEPENDENT CLAIMS

The remainder of the claims are dependant claims, each of which depend (directly or indirectly) on one of the claims discussed above. Each of the dependant claims is therefore allowable for the reasons given above for the claim on which it depends. In addition, each of the dependant claims introduces one or more additional limitations that independently render it patentable. However, due to the fundamental differences already identified, to expedite the positive resolution of this case a separate discussion of those limitations is not included at this time.

It is respectfully requested that the Examiner reconsider all of the pending claims, which are now in condition for allowance. Therefore, the issuance of a formal Notice of Allowance is believed next in order, and that action is most earnestly solicited.

Throughout the pendency of this application, please charge any fees, including the fees for the two additional claims to deposit account 50-1302. A duplicate of the Fee Transmittal sheet is enclosed.

The Examiner is respectfully requested to contact the undersigned by telephone if it is believed that such contact would further the examination of the present application.

Respectfully submitted,

HICKMAN PALERMO TRUONG & BECKER LLP

Dated: May 20, 2002

Marcel K. Bingham
Reg. No. 42,327

1600 Willow Street
San Jose, CA 95125
Telephone No.: (408) 414-1080 ext.206
Facsimile No.: (408) 414-1076

CERTIFICATE OF TRANSMISSION

I hereby certify that this correspondence is being facsimile transmitted to the Patent and Trademark Office. Group Art Unit 2100, Fax No. (703) 872-9311

on 5/20/02 by Trudy Bagdon

MARKED-UP VERISON OF CLAIMS

1. (Amended) A method for presenting data from a set of one or more tables as a set of objects **that belong to an object class**[1], the method comprising the steps of:

reading data from one or more rows of the set of one or more tables;

generating **based on database metadata**[2] an object id ~~based on~~[3] **derived from one or more**[4] values from said one or more rows, **wherein said one or more values reside in one or more columns, wherein said database metadata specifies that said object id is generated based on values in said one or more columns**[5]; and

presenting data from said one or more rows as an object ~~having~~[6] **that belongs to said object class and that has**[7] said object id.

2. (Amended) The method of Claim 1, wherein the step of generating **based on database metadata**[8] an object id ~~based on values~~[9] includes generating an object id based on values from one or more rows of a relational table that belongs to the set of one or more tables.

3. (Unchanged) The method of Claim 1, further comprising the step of generating a reference to the object based on the object id.

4. (Unchanged) The method of Claim 3, further comprising the step of accessing the object based on the reference generated for the object.

5. (Amended) The method of Claim 1, wherein:

the method further includes the steps of:

receiving a request to define a view, said request specifying **that said object id is generated based on values in said** [10]one or more columns[11] ~~of the set of one or more tables containing values used to generate said object id~~[12];

in response to receiving the request to define the view, storing specification data that specifies the one or more columns; and

the step of generating **based on database metadata** [13]an object id[14] ~~based on values from said one or more rows~~ [15]includes determining how to generate the object id by inspecting said specification data.

6. (Unchanged) The method of Claim 5, wherein the step of receiving a request to define a view includes receiving a request that specifies the one or more columns as including at least one column from a relational table.

7. (Amended) A method for presenting, as an object, data from a set of one or more tables residing in one or more databases, the method comprising the steps of:

reading a first set of data from one or more fields of a plurality rows from [[16]a] **the**[17] set of one or more tables;

generating a column object based on said first set of data; and

presenting a second set of data from said set of one or more tables as **object oriented data by presenting said second set of data as**[18] said object that has said column object as an attribute.

8. (Unchanged) The method of Claim 7, wherein the step of reading a first set of data includes reading data from one or more rows of at least one relational table.

9. (Unchanged) The method of Claim 7, wherein the step of generating a column object includes generating a collection object.

10. (Unchanged) The method of Claim 9, wherein the step of generating a collection object includes generating said collection object as a list of elements belonging to a single data type.

11. (Unchanged) The method of Claim 9, wherein the step of generating a collection object includes generating said collection object as a nested table.

12. (Unchanged) The method of Claim 9, wherein the step of generating a column object includes generating a column object belonging to a user specified object type.

13. (Unchanged) The method of Claim 9, where the step of generating a column object includes generating a column object that is a reference to another object.

14. (Unchanged) The method of Claim 13, wherein the step of generating a column object includes generating a column object that is a reference to an object presented by an object view.

15. (Unchanged) The method of Claim 13, wherein the step of generating a column object includes generating a column object that is a reference to an object residing in a database.

16. (Amended) A computer system, comprising:

a processor;

a memory coupled to said processor;

a set of one or more tables, said set of one or more tables containing one or more rows;

said processor configured to read data from one or more rows of the set of one or more tables;

said processor configured to generate **based on database metadata**[19] an object id ~~based on~~[20] **derived from one or more**[21] values from said one or more rows, **wherein said one or more values reside in one or more columns, wherein said database metadata specifies that said object id is generated based on values in said one or more columns**[22]; and

said processor configured to present data from said one or more rows as an object [23]~~having~~[24] **that belongs to an object class and that has**[25] said object id.

17. (Amended) The computer system of Claim 16, wherein said values from said one or more rows ~~includes~~[26] **include**[27] values from one or more rows of a relational table that belongs to said set of one or more tables.

18. (Unchanged) The computer system of Claim 16, further comprising:

said processor configured to receive a request to define a view, said request specifying one or more columns of the set of one or more tables containing values used to generate said object id;

said processor configured to respond to receiving the request to define the view by storing specification data that specifies the one or more columns; and

said processor configured to generate the object id based on values from said one or more rows by determining how to generate the object id by inspecting said specification data.

19. (Amended) A computer system, comprising:

a processor;

a memory coupled to said processor;

one or more databases;

a set of one or more tables contained in said one or more databases;

said processor configured to read a first set of data from a plurality of rows from the set of one or more tables;

said processor configured to generate a column object based on said first set of data; and

said processor configured to ~~represent~~[28] **present**[29] a second set of data from said set of one or more tables **as object oriented data by presenting said second set of data**[30] as said object that has said column object as an attribute.

20. (Amended) A computer-readable medium carrying one or more sequences of one or more instructions for presenting data from a set of one or more tables as a set of objects[33] **that belong to an object class**[34], wherein the execution of the one or more sequences of the one or more instructions causes the one or more processors to perform the steps of:

reading data from one or more rows of the set of one or more tables;

generating **based on database metadata** [35]an object id ~~based on~~[36] **derived from one or more**[37] values from said one or more rows**, wherein said one or more values reside in one or more columns, wherein said database metadata specifies that said object id is generated based on values in said one or more columns**[38]; and

presenting data from said one or more rows as an object ~~having~~[39] **that belongs to said object class and that has**[40] said object id.

21. (Amended) The computer readable medium of Claim 20, wherein the step of generating **based on database metadata** [41]an object id ~~based on values~~[42] includes generating an object id based on values from one or more rows of a relational table that belongs to the set of one or more tables.

22. (Unchanged) The computer readable medium of Claim 21, wherein:
the one or more sequences of instructions includes one or more instructions for performing the steps of:
receiving a request to define a view, said request specifying one or more columns of the set of one or more tables containing values used to generate said object id;
in response to receiving the request to define the view, storing specification data that specifies the one or more columns; and
the step of generating an object id based on values from said one or more rows includes determining how to generate the object id by inspecting said specification data.

23. (Unchanged) The computer readable medium of Claim 22, wherein the step of receiving a request to define a view includes receiving a request that specifies the one or more columns as including at least one column from a relational table.

24. (Amended) A computer-readable medium carrying one or more sequences of one or more instructions for presenting, as an object, data from a set of one or more tables residing in one or more databases, wherein the execution of the one or more sequences of the one or more instructions causes the one or more processors to perform the steps of:
reading a first set of data from one or more fields of a plurality rows from ~~a~~[43] **the**[44] set of one or more tables;

generating a column object based on said first set of data; and

presenting a second set of data from said set of one or more tables as **object oriented data by presenting said second set of data as** [45]said object that has said column object as an attribute.

26. (Unchanged) The computer-readable medium of Claim 24, wherein the step of reading a first set of data includes reading data from one or more rows of at least one relational table.

27. (Unchanged) The computer-readable medium of Claim 24, wherein the step of generating a column object includes generating a collection object.

28. (Unchanged) The computer-readable medium of Claim 27, wherein the step of generating a collection object includes generating said collection object as a list of elements belonging to a single data type.

29. (Unchanged) The computer-readable medium of Claim 27, wherein the step of generating a collection object includes generating said collection object as a nested table.

30. (Unchanged) The computer-readable medium of Claim 27, wherein the step of generating a column object includes generating a column object belonging to a user specified object type.

31. (Unchanged) The computer-readable medium of Claim 27, wherein the step of generating a column object includes generating a column object that is a reference to another object.

32. (Unchanged) The computer-readable medium of Claim 31, wherein the step of generating a column object includes generating a column object that is a reference to an object presented by an object view.

33. (Unchanged) The computer-readable medium of Claim 31, wherein the step of generating a column object includes generating a column object that is a reference to an object residing in a database.

34. (Unchanged) The computer-readable medium of Claim 20, the steps further comprising the step of generating a reference to the object based on the object id.

35. (Amended) The computer-readable medium of Claim ~~34,~~[50] **20,**[51] wherein the steps further comprise the step of accessing the object based on the reference generated for the object.

36. (New) The computer-readable medium of Claim 20, the steps further comprising generating a reference to the object based on the object id.

37. (New) The computer-readable medium of Claim 36, further comprising the step of accessing the object based on the reference generated for the object.